

X. DESCRIPTIONS OF TWO NEW FISH FROM THE CHILKA LAKE.

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Descriptions of two new species in the Chilka Survey collection are now published in advance of the report on the fish which is under preparation, in order to avoid the detention of a paper on the larval stages by Professor D. R. Bhattacharya, which will be issued shortly in vol. V of our *Memoirs*.

Gobius ostreicola, sp. nov.

The height of the body is 22·2% of the total length without the caudal fin, the length of the head is 35·5%, the least depth of the caudal peduncle is 15·5%, the diameter of the eye is 9%, the height of the first dorsal fin is 22·2%, the length of the pectoral fin is 33·3%, the length of the ventral fin is 26·6%, the base of the anal fin is 20%, the base of the second dorsal is 26·5%, the length of the caudal fin is 26·6% in the total length without the caudal fin.¹

The body is elongate and compressed. The caudal peduncle is very much compressed. The dorsal profile slopes downwards from the nape towards the caudal peduncle as well as towards the snout; the ventral profile is almost a straight line.

The head is large and broad and is very much depressed, its breadth being shorter than its length by the length of its snout. The part of the head on each side in front of the opercle and behind the eye protrudes above and is inflated sideways with a pore behind. There is a median longitudinal groove from the occiput to the back of the eye. The interorbital space is saddle-shaped with a slight bridge-like elevation in the middle and is equal to the length of the snout. There are a series of minute pores—openings of muciferous glands—arranged in patterns round the eyes, the nasal area and other parts of the head. The nasal area has two fleshy tubular protuberances with two valvular openings behind each in front of the eyes. The eyes are rather large, and are not lateral but wholly superior, and project beyond the dorsal profile. The snout is short and is less than the diameter of the eye in length.

The mouth is horizontal, the jaws are subequal, the lower jaw being slightly the longer, the angle of the jaws is vertically below the middle of the eye. The teeth are villiform and are in several

¹ Measurements are in hundreds of length without the caudal fin.

rows in each jaw, those of the upper jaw being smaller and less numerous than those of the lower. The teeth in the upper jaw are in two series: the outer series consists of two or three rows of teeth larger anteriorly but becoming smaller laterally; the inner (posterior) series forms a cluster of smaller teeth several rows deep but not spreading laterally. In the lower jaw there are broad bands of teeth several rows thick which continue to the angle of the mouth in almost equal thickness; the outer ones of this set are slightly larger than those behind.

The gill openings are lateral and they do not continue forward beneath. The isthmus is broad, the width being contained three times in the length of the head. Pseudobranchiae are present.

There are two dorsal fins, entirely separated from each other, the first one has six spines and the second has ten rays; the anterior end of the first dorsal is considerably behind the base of the pectoral fin, the third to fifth spines are the longest but they do not reach beyond the third ray of the second dorsal fin when lying horizontal. The second dorsal fin begins a little forward of the tip of the pectoral fin; the posterior rays of this fin are slightly longer than the anterior ones and the last of these rays almost reaches the base of the caudal fin.

The anal fin has nine rays the first of which is undivided; it is inserted a little behind the origin of the second dorsal fin and is somewhat similar in shape to that fin. Its posterior rays are longer and are long enough to reach some of the rays of the caudal fin that are attached to the ventral side of the base of that fin.

Six specimens—one type and five co-types—have the dorsal and anal fin rays as follows:—

	Dorsal spines.		Dorsal rays.		Anal rays.	
	VI.	VII.	10	11	9	10
Specimens	5	1	5	1	4	2

The pectoral fin has sixteen rays, some of which are thin and silky; the fin is somewhat low down, rather broad, and has a rounded margin.

The tip of the united ventral fin reaches the vent. The anal papilla is prominent, long and muscular. The caudal fin is broadly rounded.

The scales are small and are mostly ctenoid, except a few very small scales embedded in the occipital region of the head which is otherwise naked; the isthmus and chest are also scaleless. There are a few embedded scales in front of the vent and the part of the abdomen above the joined-ventral fin is scaleless. The number of scales in the lateral line is thirty-seven and in the lateral transverse fourteen.

The colour of the body (in spirit) is mottled dark brown, the ventral side and the sides of the abdomen being slightly lighter; the fins are dull white and the two dorsal, anal and caudal fins are banded by series of black spots in the spines and rays; in the first dorsal fin there are four such series of black dots, in the rest it varies from two to three.

The fish was found breeding among the oyster beds near Manikpatna in the Satpara peninsula.

The type specimen, measuring 45 mm. without the caudal fin and 57 mm. with it, was collected in the beginning of the month of December, 1914 near Manikpatna among the oyster beds.

There are altogether five co-types, two of which, measuring 48 mm. and 49 mm., were collected along with the type specimen near the same spot. The other three co-types measuring 39 mm. to 41 mm. were collected on the 5th of September, 1914 near the same locality.

Petrosciartes bhattacharyae, sp. nov.

The height of the body is 18% of the total length without the caudal fin, the length of the head is 25%, the least depth of the caudal peduncle is 11.5%, the diameter of the eye is 7%, the length of the snout is 9%, the length of the pectoral fin is 18%, the length of the ventral fin is 14%, the length of the caudal fin is 16%, the base of the dorsal fin is 72%, and the base of anal fin is 22% in the total length without the caudal fin.

The body is moderately elongate, round and naked. The snout is rounded and short; the mouth is sub-inferior and terminal; the cleft of the mouth is narrow. There are two small tentacles about the middle of the snout in front of the nasal openings.

There are long incisiform teeth in a single row in each jaw, and a pair of canine teeth at each angle of the jaws. The upper canine teeth are very much bent and recurved, the lower ones are longer and stouter and not curved. The number of incisor teeth in the upper jaw is 18 and that in the lower 16. There is a considerable alveolar space between the upper canine and the last (outermost) incisor of the upper jaw in each side—in which space the lower canine is lodged when the mouth remains shut.

The fins are thin, the spines and rays are hyaline and the interstices are membranous. There is a single dorsal fin with thirty-one spines commencing slightly in front of the gill-openings and ending near the base of the caudal fin; the posterior spines of the dorsal fin are higher than the anterior ones, some of the long posterior spines being almost double the length of the anterior short ones. The anal fin has twenty-one rays, the last rays almost touch the lower caudal rays. The caudal fin is fan-shaped, it appears to be somewhat truncated and has rounded sides. The ventral fin consists of two fleshy round rays united at the base and free at the end, the free portion of the outer ray is nearly double that of the inner free end. The pectoral fin is

rounded and has a somewhat muscular base. It is considerably posterior to the origin of the ventral fin. There is an anal papilla equidistant from the end of the snout and the base of the caudal fin, it is also in the middle of the vent and the anterior origin of the anal fin.

The ground colour of the head and of the body is dull brown with a lighter shade in the abdominal region. On each side of the head there are four broad transverse bands, black in colour, with interspaces equally broad but white; on the upper part of the head there is one white horse-shoe-shaped loop commencing behind the eyes and reaching round the occiput. On the side of the body there are eight or nine very faint but darkish transverse bands—broader than those on the sides of the head, with interspaces equally broad; along the middle line on each side of the body—on each of these dark faint bands—there are altogether eight or nine round black blotches. Looking from above the lighter interspaces, that pass through the base of the dorsal fin from side to side, appear as many white blotches. The fins are diaphanous and slightly darkish, the anal fin being darker than the rest. The dorsal and the anal fins are edged with bright white points and the base line of the caudal fin has a white band posterior to a dark band. There is a transverse broad black band low down on the anterior side of the base of the pectoral fin. The terminal edge of the opercular membrane is white.

The type specimen, measuring 44 mm. without the caudal fin and 51 mm. with that fin, was obtained at Barkul Point on the 2nd March, 1914. There are altogether eleven co-types.

Habitat.—The species is a permanent inhabitant of the lake, both in the Main Area and in the outer channel, breeding in the lake.
